REMARKS

Introduction

Claims 1-31, and 33-42 are pending in the present application. Independent Claims 1, 19, 27, and 38 are amended in the Response. In a June 30, 2005, Office Action (herein "Office Action"), Claims 1-9, 12-15, 17-21, 24-31, and 33-42 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,282,454 to Papadopoulos et al. (hereinafter "Papadopoulos"). Claims 10, 11, 16, 22, and 23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Papadopoulos in view of U.S. Patent No. 6,453,687 to Sharood et al. (hereinafter "Sharood").

Claim Rejections

35 U.S.C. § 102(e)

Introduction

Claims 1-9, 12-15, 17-21, 24-31, and 33-42 were rejected under 35 U.S.C. § 102(e) as being anticipated by Papadopoulos. For the following reasons, applicants respectfully submit that the rejected claims of the present application are not anticipated by Papadopoulos because Papadopoulos fails to teach or suggest providing the ability to define attributes of a Web site using a non-markup language, store non-markup language information defining attributes of the Web site in a Web site database, and using the Web site database to dynamically generate a Web site that may be used to provide information regarding a control system (Claims 1-9, 12-15, 17-21, 24-31, and 33-42). Prior to discussing more detailed reasons why applicants believe that all of the pending claims of the present application, as amended, are allowable over Papadopoulos, a brief description of the present invention and the cited references is presented.

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

Summary of the Present Application

The present application generally relates to the filed of process control systems. More particularly, the present application is directed toward providing the ability to define attributes of a Web site without using a markup language, wherein that Web site may then be used to provide information regarding the operation of a control system, such as a Programmable Logic Controller ("PLC"). Additionally, upon receipt of a non-markup language that defines the attributes of a Web site, the claimed invention stores that data in a manner that requires less memory space than storing conventional markup language Web pages.

In an embodiment, the invention includes a Web server module configuration application that provides an easy-to-use interface for defining attributes of a Web site that may be used to provide information about a control system. *See* Application, p. 12. In particular, the Web server module configuration application allows a user to define attributes of a Web site using a non-markup language by providing the user with easy-to-use menus and interfaces. The menus and interfaces allow a user to design a Web site through selections on a number of display screens rather than through the use of a markup language. *See id.* The Web server module configuration application stores the user-made selections in a non-markup language Web site database and transmits that database to the Web server module. *See id.* The Web server module utilizes the contents of the non-markup language Web site database to dynamically generate markup language pages for a user when a request is received. *See id.*

Once a user has defined the Web site via the Web server configuration application, the Web server configuration application stores the information as a non-markup language Web site database, also referred to in the application as a screen database (*e.g.*, FIGURE 5, element 112) and transmits that database to the Web server module. *See id.* at 15. When requested, the Web server module utilizes the contents of the non-markup language Web site database to

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

dynamically generate markup language Web pages. *See id.* Information about the control system may then be provided to a user via the dynamically generated Web pages.

Storing the non-markup language Web site database allows a user to create a database that does not just store Web pages, but instead stores all attributes required to dynamically generate pages of the Web site when requested.

Numerous advantages may be realized by the system, method, and apparatus recited in the claims of the present application. In one aspect, a user may define, from a remote location, a Web site that may later be used for providing information regarding the operation of a control system without having to use a markup language. As discussed in the Background section of the application and as discussed below with respect to Papadopoulos, the main drawback with existing Web server-based systems for accessing data contained in the memory of a control system is the difficulty in creating and modifying the Web site that is provided by the Web server module. This process is typically an arduous one that involves an operator creating each of the Web pages of the Web site using a standard markup language, such as the hyper-text markup language ("HTML") or extensible markup language ("XML"), and possibly a programming language such as JAVA®. While PLC operators are often well versed in ladder logic, HTML, XML, and JAVA are typically foreign topics. Providing a system, method, and apparatus that allows a user to define a Web site using non-markup languages resolves this drawback of existing server-based systems such as Papadopoulos.

In another aspect, embodiments of the present invention store data defining a Web site in a manner that requires less memory than storing conventional markup language Web pages. Web servers generally use non-volatile memory to store conventional markup language Web pages and any associated information, such as graphics. Typically, a standard file system is created within the non-volatile memory with all the HTML contents for a page rendering stored

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

there. For large Web sites, such a storage scheme results in a large amount of non-volatile memory being consumed. The claimed invention, in contrast, only stores the information necessary to generate a Web site when requested, thereby reducing memory requirements.

U.S. Patent No. 6,282,454 to Papadopoulos et al.

Papadopoulos is purportedly directed toward a Web interface for a programmable controller. The stated goal of Papadopoulos is "to develop an automation control system whereby a user could use general, commercial networks such as the Internet in place of specialized industrial networks to remotely monitor automation control devices such as PLCs." Papadopoulos, Col. 2, lines 25-30. In accordance with that goal, Papadopoulos describes "a system of essential elements including . . . a Web interface, a local network, and a network interface to at least one PLC control system. . . The Web interface runs Web pages from an Ethernet board coupled directly to the PLC back plane and includes an HTTP protocol interpreter, a PLC back plane driver, a TCP/IP stack, and an Ethernet board kernel." Col. 2, lines 45-54.

In using the system, Papadopoulos describes that a user can enter the address of the Web site that will display a home page that may contain text; some type of multimedia offerings such as graphic images, video, or audio; and possibly hypertext links to other documents. The Web site home page and other pages of the Web site are provided by the Web server. Col. 4, lines 10-15.

While Papadopoulos describes the ability for a user to obtain snapshots of the status of a control system from a remote location via seven predefined Web pages, Papadopoulos fails to teach or suggest a system or method for defining attributes of a Web site that is used to provide that information, as called for in the claims of the present application. Likewise, Papadopoulos fails to teach or suggest how the Web site that is used to provide information regarding the PLC

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

is stored. As such, there is no teaching or suggestion of storing a non-markup language Web site database defining attributes of a Web site associated with the control system, wherein the non-markup language Web site database is in a format that may be utilized by a central processing unit to dynamically render Web pages of the Web site. Papadopoulos is limited to a system that uses conventional markup language Web pages to provide snapshots of control system information.

The Claims Distinguished

As recited above, Claims 1, 19, 27, and 38 describe a system, method, and apparatus that provide the ability for a user to define attributes of a Web site using a non-markup language, wherein that Web site may be used to provide information about a control system. Both Claims 1 and 27 include the limitations of receiving non-markup language configuration data defining attributes of said Web site and storing that data as a non-markup language Web site database. Similarly, Claim 19 includes the limitation of storing "a non-markup language Web site database defining attributes of a Web site associated with a control system, said non-markup language Web site database in a format that may be utilized by said central processing unit to dynamically render Web pages of said Web site that provide information regarding the operation of the control system." In even greater detail, Claim 38 includes the limitation of "receiving a non-markup language Web site design, wherein the non-markup language Web site design defines attributes of a Web site." Additionally, Claim 27 also includes the limitation of "dynamically generating a Web page defined by the non-markup language configuration data stored as a non-markup language Web site database that provides information regarding the operation of a control system."

A system, method, and apparatus that provides the ability to define attributes of a Web site using a non-markup language, store that non-markup language instead of conventional

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

markup language Web pages, and dynamically generate Web pages based on that information, enable users to easily create a Web site without having to know a markup language. Additionally, storing attributes that may be used to dynamically generate a Web page, as opposed to storing conventional Web pages and associated information, reduces the total amount of required memory.

The Office Action asserts that Papadopoulos teaches: "a Web server module (fig. 3, element 30) . . . having a memory operative to store a non-markup language Web site database defining a Web site (col. 4, lines 36-41, 61-65; the Web server retrieves and stores non-markup PLC data in its memory)." Office Action, p. 3. Additionally, in the Response to Arguments section, the Office Action states that Papadopoulos discloses retrieving "non-markup language data (from programmable logic controller 'PLC' (6, fig. 1)) via the web server . . . retrieves and stores non-markup data from the control system (6, fig. 1) in its memory and translates the non-markup data into mark-up format." Office Action, p. 9. For the following reasons, applicants respectfully assert that Papadopoulos fails to teach each of the limitations of Claims 1, 19, 27, and 38.

To clarify that the "non-markup language," as called for in the claims, is not simply data obtained from the PLC, each of the independent claims has been amended to read that the non-markup language defines "attributes" of a Web site. As described in the application, the Web server module configuration application is used to define the Web site that is later used to serve information about the PLC. The Web site database that is created using the Web server configuration application includes the non-markup language defining attributes of that Web site. FIGURES 28-34 and the corresponding description provide several examples of defining attributes of a Web site using the Web server configuration application. For example, using the Web server configuration application, a user may, using a non-markup language, add pages,

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

subtract pages, or modify pages of the Web site that will be provided by the Web server module. *See* Application, p. 32, lines 28-35.

In contrast to the claims, Papadopoulos describes the use of conventional static Web pages that may be updated with control system information and provided as snapshots to a user. The Office Action states that the non-markup language is data received from the control system (PLC). However, even assuming the data from the control system can be considered non-markup language, that data is not used to define attributes of the Web site. Instead, the data from the PLC is provided via the Web site. In Papadopoulos, the Web sites that are used to provide the PLC data are described as seven predefined Web pages: "The home page contains hyperlinks to seven pages of data. . . . The data appearing on the pages is static but can be automatically updated at preselected times." Papadopoulos, at Col. 8, line 62-Col. 9, line 16. There is no discussion in Papadopoulos of using non-markup languages to define attributes of a Web site.

Additionally, because there is no discussion in Papadopoulos of using a non-markup language to define attributes of a Web site, it follows that there is also no discussion in Papadopoulos of storing information in a non-markup language Web site database that may be used to dynamically generate a markup language Web site in response to a request. The Office Action asserts that Papadopoulos discloses that a client device "can access and control the PLC system via the web server from remote locations" and that "the web server retrieves non-markup PLC data from PLC system and dynamically converts or translates the non-markup language data into markup language data." Office Action, p. 9. However, as discussed above, the data received from the PLC in Papadopoulos does not define the Web site and/or include attributes defining the Web site, as called for in the claims of the present application. The PLC data is

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

simply information about the control system. Thus, the PLC data does not define attributes of the Web site and cannot be used to dynamically generate a Web site.

Because Papadopoulos does not teach each of the limitations of the independent claims, Papadopoulos cannot anticipate those claims. Accordingly, Claims 1, 19, 27, and 38 are believed patentable over Papadopoulos and withdrawal of the rejected is requested.

Claims 2-18, 20-26, 28-31, 33-37 and 39-42

Claims 2-18 each ultimately depends from Claim 1; Claims 28-31, and Claims 20-26 ultimately depend from Claim 19; Claims 33-37 each ultimately depends from Claim 27; and Claims 39-42 each ultimately depends from Claim 38. As discussed above, Papadopoulos fails to teach or suggest each of the limitations recited in Claims 1, 19, 27, and 38. Accordingly, for the above-mentioned reasons, Claims 2-18, 20-26, 28-31, 33-37, and 39-42 are likewise allowable over Papadopoulos. In addition, Claims 2-18, 20-26, 28-31, 33-37, and 39-42 further add to the nonobviousness of the claims.

CONCLUSION

Based on the above-referenced arguments and amendments, applicants respectfully submit that all of the pending claims of the present application—Claims 1-31 and 33-42—are allowable over the cited and applied references. Because the cited and applied references fail to teach a method, system, and apparatus for providing information regarding the operation of a control system that utilizes non-markup language configuration data defining attributes of a Web site, storing the configuration data as a Web site database, and dynamically generating a Web page from the non-markup language Web site database in response to a request, applicants respectfully request withdrawal of the rejections of the claims and allowance of the present application.

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

If any questions remain, applicants request that the Examiner contact the undersigned at the telephone number listed below.

Respectfully submitted,

CHRISTENSEN O'CONNOR
JOHNSON KINDNESS[PLLC]

Larry T. Harris
Registration No. 44,745
Direct Dial No. 206.695.1642

I hereby certify that this correspondence is being deposited with the U.S. Postal Service in a sealed envelope as first class mail with postage thereon fully prepaid and addressed to Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the below date.

Date: November 23, 2005

LTH:mgp

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS[PLLC]
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100